CITY OF TORONTO
DEPARTMENT OF PUBLIC WORKS

55.

March 22, 1984.

To: City Services Committee

Subject: The Beaches and the City of Toronto's Responsibility

Origin: Commissioner of Public Works (c39csc84119:50)

METROPOLITAN TORONTO REFERENCE LIBRARY Municipal Reference

Comments:

City Council at its meeting of September 6, 1983, adopted my recommendations regarding short and long term courses of action with respect to the water quality of the City's beaches. The purpose of this report is to outline the work carried out since September, 1983, review the current status, and make recommendations for measures required during 1984.

1. SHORT TERM RECOMMENDATIONS - WORK CARRIED OUT

Underwater Inspection of Sewer Outlets

I have completed a thorough diving inspection of these facilities and have established that the underwater sewer outlets are in good condition and have no major structural deficiencies which would cause short circuiting and an increased threat to water quality. During inspection, certain sediment build-ups and minor faults were uncovered which will be corrected on a priority basis through my normal sewer maintenance programme.

Inspection of Weir and Diversion Chambers

A thorough check has been made of the 105 weir and diversion chambers which prevent raw sewage from discharging into the Lake from the sewer system during dry weather. These facilities were found to be in good operating condition and no dry overflows were detected other than that of the weir facility on Queen Street East at Coxwell Avenue; at this location intermittent dry weather discharges were taking place and flowing to Ashbridges Bay via the Coxwell Avenue storm trunk overflow sewer. The overflow has been corrected, the cause being a partial blockage in the sanitary sewer system on Queen Street East at Eastern Avenue.

Dry Weather Flow - Storm Outlet Pipes

The 29 outlet facilities have been checked. No dry weather flow was found in 13 outlets; 14 outlets showed dry weather flow present but with little bacteriological content; the remaining 2 outlets were found to have high bacteriological counts. The source of contamination in one of the outlets (Coxwell Avenue outlet

sewer) has been corrected and, as noted above, was caused by a partial blockage in the sanitary sewer system on Queen Street East at Eastern Avenue. The remaining storm sewer outlet on Roncesvalles Avenue, which recorded a high bacteriological count, is still under investigation by my staff.

While the Roncesvalles Avenue storm sewer outlet is still under investigation, the extensive inspection programme has shown that the discharge of bacteriological matter into the Lake during dry weather flow is insignificant.

Trial Programme of Physical and Chemical Treatment Along Shoreline for Coliform Control

In the latter part of 1983, I carried out a complete clean-up of the shallows and shoreline of the Sunnyside Beaches and removed a total of 140 tonnes of debris. While I did not take water quality readings before and after this clean-up, there is no doubt that the removal of rubbish from the shallows and shoreline will work towards the improvement of water quality.

I did not undertake any trial field work on chemical treatment (mild chlorine solution) along the shallows and shoreline for I have not yet been able to determine a suitable procedure; I shall, however, continue to explore this opportunity.

Toronto Area Watershed Management Strategy Study

The Ministry of the Environment has provided additional funding for this study so that it can be expanded and allow certain components to be accelerated within the original study timetable. The study now includes a full investigation of the waterfront area and preliminary planning for the Mimico Creek Watershed.

To date, the study has undertaken investigative work (data collection and analysis) in the Humber River and along the waterfront. Investigative work in the Don River will be undertaken in 1984. The Humber Watershed portion of the study has been given first priority.

Water Quality Guidelines, Regulations and Sampling Procedures

The current water quality guidelines with respect to swimming and bathing uses of water were published by the Ministry of the Environment in 1978 and are based on the use of bacteriological criteria, supplemented by nonbacteriological criteria to determine if a potential health hazard and/or water quality impairment exists. A potential health hazard is defined as a situation where there is a high risk of contracting a disease from use of the water. In these situations, confirmation of the hazard should be sought, potential users should be notified by the appropriate

authority, immediate corrective action should be started and surveillance of water quality should continue until the corrective action is completed and the water quality can be considered safe for recreational use. Water quality impairment is defined as a situation where there is risk of disease from use of the water but where a less restrictive course of action can be followed. In these situations, confirmation of the impairment should be sought, corrective action should be started and surveillance of the water quality should be maintained.

These bacteriological criteria standards are based on total coliform set at 1,000 maximum per 100 ml and on fecal coliform set at 100 per 100 ml which are supplemented by:

1. Findings of sanitary surveys
2. Epidemiological data and disease outbreak reports
3. Direct enumeration of pathogenic organisms (e.g. Pseudomonas aeruginosa)
4. Information concerning other potential indicator organisms.

It is recommended in the guidelines that for purposes of establishing bacteriological indices, that the geometric mean of a series of at least ten samples a month per sampling location be determined and if there is concern with respect to contamination, the sampling frequency should be increased. The guidelines do not contain direct reference to the location at which the samples should be taken but this has been clarified by the Ministry of the Environment who indicate that in order to secure a proper index of the bacteriological indicators, that the sampling should take place in water depths of 1 to 1.5 metres with the sample being collected at a point 0.3 metres below the water surface.

The Medical Officer of Health and I have conferred with senior officials of the Ministry of the Environment. We have requested that the present water quality bacteriological criteria -- total coliform - 1,000 per 100 ml / fecal coliform - 100 per 100 ml -- and sampling procedures continue to be applied during 1984. The Medical Officer of Health has proposed that, in addition to the above bacteriological indicators, he intends to analyze the water quality samples collected by his inspectors for other indicator organisms. This matter is now under consideration by the Ministry of the Environment in their review of the current water quality guidelines.

Recommendation:

That City Council request the Honourable A. S. Brandt, Minister of the Provincial Ministry of the Environment to confirm the present water quality bacteriological criteria and sampling procedures will continue to be applied during 1984.

2. LONG TERM RECOMMENDATIONS - STATUS

The City's Sewer Programme

In my report to Council on the 6th of September, 1983, I recommended that the City's sewer programme be completed as presently staged and planned. A decision has now been made by City Council to accelerate work from 1989 to 1984 but subject to the provision of funds (Ministry of Transportation and Communications subsidy) by the Provincial Government. There are two projects involved:

Project Description	Gross Cost	Recoveries M.T.C.	Recoveries Metro	Net Cost
Storm Sewer on Avenue Road from Macpherson Avenue to Chicora Avenue	216,000	108,000	43,000	65,000
Storm Trunk Sewer from Rosedale Valley Road and Sherbourne Street to Crescent Road and Roxborough Street	2,098,000	512,000	631,000	955,000
Totals	2,314,000	620,000	674,000	1,020,000

These storm sewers will provide an outlet for road storm sewers servicing approximately 50 hectares which is presently connected to the combined trunk sewer system; pollutional flows to the Don River will be reduced as will the amount of storm run-off being directed to the Main Sewage Treatment Plant at Ashbridges Bay.

The 1984 programme, as planned, continues the relief of the City's combined sewers and will further reduce the volume of combined overflow into the receiving waters. The improvements to the

combined outlet sewers at Kenilworth and Maclean Avenues are of particular significance. With the completion of a new trunk sewer facility on Queen Street last year, the frequency and volume of combined overflows through these outlet sewers to the Eastern Beaches will be substantially reduced by modifications to the overflow weirs. The modifications to the Kenilworth Avenue control weir were completed in 1983 and work to the Maclean Avenue weir will be undertaken early in 1984 and be completed before the swimming season.

Extension of Existing Combined Sewer Outfalls - Kenilworth and Maclean

It is possible to extend these combined sewer outfalls and I have investigated two schemes:

Scheme A - Preliminary Estimated Cost - $3,000,000

Each sewer outlet would be extended separately from their present limits a further 130 metres into the Lake. This is the maximum length of extension that can be permitted without creating operating problems (basement flooding) in the local combined sewer system serviced by these outlets.

Scheme B - Preliminary Estimated Cost - $9,600,000

Under this scheme, it is proposed that each of the combined sewer outlets would be interconnected by the construction of a header system to adjacent storm sewer outlets (Maclean Avenue plus four storm sewers - Kenilworth Avenue plus four storm sewers), and a new outlet constructed from the header a distance of approximately 140 metres into the Lake - the maximum distance that can be accommodated without creating operating problems in the local combined sewer system.

I cannot, however, on the basis of the present data available with respect to water quality on the Eastern Beaches, determine if the improvements to the bacteriological water quality indices, if any, justifies the construction of either of these options. Accordingly, I am recommending no action be undertaken in respect of these proposed works until further water quality studies (described later in this report) have been undertaken and completed.

Recommendation:

That no action be taken with respect to the extension of existing sewer outfalls at the Eastern Beaches pending further water quality studies.

Chemical Treatment of Existing Combined Sewer Outfalls

Following a review of existing technical data and studies, I have concluded that the disinfection of storm run-off utilizing a 12 per cent sodium hypochlorite solution (this solution is similar to Javex bleach which is sold for commercial use as a 12 per cent solution and for domestic use as a 5 per cent solution of sodium hypochlorite), would result in a reduction of bacteria and provide improvement to beach water quality. I have developed plans for such an installation and applicable to the City's Eastern Beaches.

If, after careful consideration of the consequences, the current review of water quality guidelines results in more stringent bacteriological criteria being required, I am of the opinion it will be necessary to provide treatment, in all urban centres, of run-off from any combined sewer outlet discharging directly into or in the vicinity of bathing beaches. It is, therefore, appropriate to construct a chlorination facility for the treatment of run-off from the City's Maclean Avenue combined sewer which discharges into the Eastern Beaches; this installation will serve as a demonstration project for use at other locations within the Province and across Canada. Such a demonstration project should be funded jointly by the Province of Ontario and the Federal Government.

The proposed installation would be constructed in an underground reinforced concrete tank with the disinfecting solution being stored in polyethylene tanks. The operation of the facility would be monitored to ensure against the possibility of any accidental spill of the disinfecting solution. The estimated cost of this demonstration installation is $225,000.00 with an estimated annual operating cost of $35,000.00.

Recommendation:

That City Council request the Province of Ontario and the Federal Government to give consideration to the funding of a demonstration chlorination facility to the Maclean Avenue combined sewer outlet at an estimated construction cost of $225,000.00 and that the annual operation cost ($35,000.00) be shared between the City, the Province of Ontario and the Federal Government.

3. PROPOSALS BY THE METROPOLITAN WATER POLLUTION COMMITTEE

Since my report of last September, this Committee was established for the purpose of examining the pollutional difficulties in Metropolitan Toronto and to provide recommendations on measures to reduce the problem. The Committee has been working in close co-operation with the Provincial Ministry of the Environment, the

Metropolitan Toronto and Region Conservation Authority and representatives of the area municipalities. The Committee, and I quote, has recently proposed that consideration be given to the following programme which is now being reviewed by the Ministry of the Environment.

"Western Beaches

The Ministry of the Environment (M.O.E.) should ensure that either the Ministry of Natural Resources or, alternatively, the Ministry of the Environment, provides the provincial contributions that normally apply to waterfront development work by the Metropolitan Toronto and Region Conservation Authority (M.T.R.C.A.) for the following work:

		Gross Cost $	Provincial Contribution $
(a)	Humber River Diversion by M.T.R.C.A.	150,000.00	82,500.00 (at 55%)
	Subject to grant of easement by City of Toronto work could commence in February, 1984		
(b)	Ellis Avenue Storm Sewer Extension*	1,500,000.00	825,000.00 (at 55%)
	Subject to confirmation of the benefits to be achieved and work could commence by September, 1984. A temporary diversion may be implemented by June, 1984.		
(c)	Physical Shoreline Improvements	500,000.00	275,000.00 (at 55%)
	Including grass removal and substitution, geese and gull control, erosion protection, circulation improvement and maintenance		

	equipment which could commence in February, 1984		
(d)	Dredging*	250,000.00	137,500.00 (at 55%)
	Subject to an Environmental Assessment Act exemption or class assessment and designation of a disposal area, and this work should commence in September, 1984		

Eastern Beaches

The Ministry of the Environment should ensure that either the Ministry of Natural Resources or, alternatively, the Ministry of the Environment provides the provincial contributions that normally apply to waterfront development work by the Metropolitan Toronto and Region Conservation Authority for the following work:

		Gross Cost $	Provincial Contribution $
(a)	Study of impact of storm outfall, combined overflow discharge, and proposed improvements*	300,000.00	165,000.00 (at 55%)
(b)	Various storm sewer outfall extensions by 130 metres*	9,600,000.00	5,280,000.00 (at 55%)
(c)	Extensions of the Maclean and Kenilworth Combined Sewer Overflows by approximately 130 metres	3,000,000.00	1,650,000.00 (at 55%)
(d)	Physical shoreline improvements, including maintenance equipment	100,000.00	55,000.00 (at 55%)

*These items could be undertaken by the City of Toronto or by the M.T.R.C.A. with the City of Toronto as the benefitting Municipality. Provincial funding is based on normal 55 per cent share of M.T.R.C.A. waterfront development work. Alternatively, these items could be considered eligible for M.T.C. subsidies based on 50 per cent maximum contribution.

Accelerated Sewer Separation Programme

The Ministry of the Environment should ensure that the Ministry of Transportation and Communications (M.T.C.) or, alternatively, the Ministry of the Environment provides sufficient increased allocation for the subsidies for which the accelerated projects will be eligible.

	Gross Cost $	Provincial Contribution $
Accelerated sewer separation projects during the year 1984 made possible by increased local Metropolitan or Federal funding	9,194,000.00	2,397,000.00
GRAND TOTALS (Items 1, 2 and 3)	24,594,000.00	10,867,500.00"

4. RESPONSE TO METROPOLITAN WATER POLLUTION COMMITTEE

These projects relate directly to the City's beaches or sewer system and, therefore, I am providing your Committee with my comments and recommendations on these proposals.

Western Beaches

(a) Humber River Diversion

This project, which does not require direct City funding, is essential to the improvement of the water quality of the Sunnyside Beach. On the basis of existing bacteriological data, the inter-municipal flows in the Humber River are a dominant factor influencing the water quality of the Sunnyside Beach. The diversion is to be undertaken by the Metropolitan Toronto and Region Conservation Authority who will require a

grant of easement over City-owned property to secure access to the work site. A formal request with respect to this easement has been received by the City and the appropriate officials are taking the necessary action to comply. The construction work which has been proposed, subject to all other relevant approvals being obtained, provides for the completion of this diversion structure by the end of June, 1984.

Recommendation:

That City Council endorse the construction of a diversion structure at the mouth of the Humber River and request that the work be completed at the earliest possible date.

(b) Ellis Avenue Storm Sewer Extension

This extension has been proposed subject to studies confirming that run-off from Grenadier Pond is a significant factor in the water quality of the Sunnyside Beaches. Grenadier Pond and Grenadier Pond West receive run-off from five storm sewer outlets and the testing of these outlets has indicated the presence of intermittent bacteriological matter during dry weather. My ongoing investigation work into cross connections will continue and prompt action will be taken to make good and correct. In my opinion, however, the bacteriological tests of the run-off from Grenadier Pond suggest that the animal and wildfowl populations of the Pond are a major source of the bacteria.

In order to establish the significance of run-off from Grenadier Pond, I propose to divert dry weather and wet weather flow from the Pond to the Humber River. I am, therefore, recommending that this diversion be carried out at an estimated cost of $30,000.00, but contingent upon the Humber River diversion structure being constructed.

Accordingly, any action on the extension of the Ellis Avenue storm sewer should await the evaluation of my proposed temporary diversion of the Grenadier Pond run-off to the Humber River.

Recommendation:

That City Council, subject to the construction of the Humber River diversion structure, approve of the diversion of run-off from Grenadier Pond into the Humber River at an estimated cost of $30,000.00 and that no action be taken on the extension of the Ellis Avenue storm sewer until an evaluation of this diversion on beach water quality has been undertaken.

(c) Physical Shoreline Improvements

I have conferred with the Commissioner of Parks and Recreation and we are recommending that shoreline improvements be proceeded with in 1984. This will involve the removal of grass areas and replacement with sand for a distance of fifty feet from the present shoreline along the entire length of the Sunnyside Beach. Improvements to the shallows and shoreline will involve the removal of silt and mud and replacement with clean sand bedding. I estimate the cost of this work at $150,000.00.

We do not recommend any beach erosion control and/or circulation improvements at this time since these matters are contingent upon further studies.

The matter of bird control is a perplexing problem and I can find no defined or single jurisdiction at any level of government. There is, however, an obvious need for a control programme in 1984. I am, therefore, recommending the City during 1984 develop a programme in co-operation with Metropolitan Toronto and the Metropolitan Toronto and Region Conservation Authority and that funds in the amount of $10,000.00 be provided for this purpose.

Recommendations:

That City Council approve of shoreline improvements for the Sunnyside Beaches being undertaken in 1984 at an estimated cost of $150,000.00.

That City Council approve of a bird control programme being developed in co-operation with Metropolitan Toronto and the Metropolitan Toronto and Region Conservation Authority at an estimated cost of $10,000.00.

(d) Dredging

It is proposed that a study be undertaken to establish the impact on the general water quality of the beaches by the removal of existing bottom sediments behind the seawall. I can support a study of this nature but I am of the opinion it should not be started until the impact of the Humber River diversion and the temporary diversion of the run-off from Grenadier Pond is evaluated. This study should also consider the benefits which may be obtained by improving circulation from the Lake behind the seawall.

Recommendation:

That a study of the need to remove existing bottom sediments behind the seawall at the Sunnyside Beaches and improved lake circulation not be started until the impact of the Humber River diversion structure and the diversion of run-off from Grenadier Pond has been evaluated.

Eastern Beaches

(a) Study of Impact of Storm Outfall, Combined Overflow Discharges and Proposed Improvements

On the basis of current data available with respect to water quality on the Eastern Beaches, I cannot reach a positive and clear decision as to whether or not the extension of existing combined sewer and/or storm sewer outlets would provide significant water quality benefits to the Eastern Beaches. I am, therefore, recommending that a comprehensive study be undertaken to determine the impact of these discharges on the Eastern Beaches.

Two important factors are involved in this study:

1. Development of a model which can be used to predict the improvements in water quality for different configurations of sewer outlets under various wind and current conditions in the Lake.

2. The further development of a model (Q.Q.S.) which simulates the operation of the City's sewer system and the Metropolitan Corporation's interceptor system under various actual storm events and the consequent bacteriological loading to the Lake.

I propose to engage the services of Gore and Storrie Limited to assist my staff with the work described in (1) above. I estimate the cost of consulting services at $87,000.00. The cost for sampling, field survey work and equipment required by my staff is estimated at $45,000.00.

In 1978, City Council approved my recommendation for the initial development of the model described in (2) above. I now propose to update and develop this model (Q.Q.S.) further and to engage the services of Dorsch Consult Limited to assist my staff. I estimate the cost of the services of the consultant at $50,000.00.

Your Committee should note that the final (Q.Q.S.) model will not just apply and be limited to the Eastern Beaches but will ultimately pertain to the entire waterfront.

Recommendations:

That City Council approve of the engagement of Gore & Storrie Limited, 1670 Bayview Avenue, Toronto, Ontario, M4G 3C2, to provide assistance to my staff in the development of a predictive water quality model for the Eastern Beaches at an estimated cost of $85,000.00. Payment to be made in accordance with the current Schedule of Fees as recommended by the Association of Professional Engineers of the Province of Ontario, Fee Basis "A" - Time Plus Expenses.

That City Council approve of the engagement of Dorsch Consult Limited, 417 Queens Quay West, Suite G130, Toronto, Ontario, M5V 1A2, at an estimated cost of $50,000.00, to provide assistance to my staff in connection with the determination of sewer system loadings. Payment to be made in accordance with the current Schedule of Fees as recommended by the Association of Professional Engineers of the Province of Ontario, Fee Basis "A" - Time Plus Expenses.

That City Council approve of field survey work and associated testing being undertaken by my Department at an estimated cost of $45,000.00.

(b) Various Storm Sewer Outfall Extensions

I cannot recommend proceeding with this work until the study work outlined in Item (a) above has been completed.

(c) Extension of Maclean Avenue and Kenilworth Avenue Combined Sewer Overflows

I cannot recommend proceeding with this work until the study work outlined in Item (a) above has been completed.

(d) Physical Shoreline Improvements, Including Maintenance Equipment

See later comments under Beach Caretaking (6.(b))

Acceleration of Sewer Programme

See previous comments under Long Term Recommendations - Status - The City's Sewer Programme.

5. BATHING BEACH MANAGEMENT - GENERAL

The presence of bacteria and pathogens in recreational waters cannot be eliminated - the City's beaches are no exception.

Testing will show daily variation in the level of water quality and this quality will vary from sampling location to sampling location on the same beach. Winds, natural lake currents and the cleanliness of the shallows are factors that cause fluctuations. Single isolated tests do not give an adequate representation of water quality and should not be used as a sole basis of making a decision to placard a swimming area. Bathing beach management must be based on:

1. A knowledge of potential sources of contamination.

2. Past and present bacteriological data.

3. Judgement.

My experience of the past water quality history of the City's beaches suggests that bacteriological loadings from rainfall events have the greatest impact on the water quality index, thus causing it to increase significantly following a rainfall event to the point where water quality impairment exists and where water quality guidelines are exceeded.

These occurrences are not unique to the City of Toronto beaches but are normal and typical of water quality behaviour at all major swimming beaches located in built-up urban centres. Under such circumstances it is important that I develop a programme to anticipate bathing water quality, for interpretation by the Medical Officer of Health, according to the output of a predictive model. I note that other Great Lakes' cities are proceeding to follow this course of action.

The proposed predictive model which I am recommending will, in the course of a few years, provide the type of management tool needed and will permit the forecasting of water quality to the bathing beaches under various rainfall intensities, resultant storm overflows, shoreline geometry, winds and currents of the Lake. In this way the issuance of swimming advisories will become a routine summer procedure.

6. 1984 PLAN FOR THE BEACHES

(a) Sampling Programme

In view of the concerns of last summer resulting from water quality readings obtained from shoreline sampling versus boat sampling, I concur with the Medical Officer of Health that water quality sampling should be undertaken on a daily basis during 1984. This will ensure that an exact and complete picture of the water quality of all of the City's beaches is

obtained; it will also provide an essential data base for the future.

As previously noted, the sampling protocol proposed by the Ministry of the Environment requires samples to be collected, by wading, in water depths of 1 to 1.5 metres, with samples being collected at a point 0.3 metres below the water surface. The recommended protocol is consistent with procedures followed in recent epidemiological work being used by the Ministry of the Environment in their review of the present bacteriological criteria. It is accepted that such sampling provides an adequate representation "index" of the water quality to which all users of the water are exposed -- i.e. it takes into consideration the variation in the level of indicator and pathogenic organisms that exist in the shallow shoreline waters versus the off-shore waters. It is important that this point be clearly understood and accepted by all in view of the concerns of last summer when shoreline sampling indicated higher levels of bacteriological contamination than off-shore testing.

The Ministry of the Environment is reviewing the acceptability of the current indicator organisms on the basis of their own research and findings of recent epidemiological studies carried out in the United States.

Pathogenic microorganisms in water are difficult to monitor due to problems with sample collection, analytical techniques, and because they occur only sporadically in polluted water. Historically, total coliform and fecal coliform have been used to indicate fecal pollution. However, it has now been concluded by experts that there are other indicators which provide a better correlation with swimming associated illness. These are Escherichia Coli, commonly known as E. Coli, and enterococci.

I understand that the annual testing work undertaken by the Medical Officer of Health will be expanded to include these new indicator organisms and will provide basic data for the ongoing review of Water Quality Guidelines.

Recommendation:

That the Medical Officer of Health be requested to report to City Council on the details of his 1984 sampling and testing programme for the City's beaches.

(b) Beach Caretaking

It is important to keep the City's beaches clean. Daily litter picking will not only keep the beaches aesthetically

attractive but will also prevent the accumulation of material that can attract birds and animals and their droppings.

Shoreline and shallows maintenance undertaken on a regular basis, in addition to improving the appearance of the beaches, also eliminates rubbish that can harbour bacteria and effect water quality. The Commissioner of Parks and Recreation has recommended and has obtained prior authorization for the purchase of a surfrake and vacuum litter pickers. This additional equipment will make a substantial improvement in the caretaking activities on the beaches.

The Commissioner of Parks and Recreation has also proposed a shoreline and shallows clean-up programme and has recommended that an application be made to the Federal Government under the Environment 2000 Programme. The gross cost of this clean-up programme has been estimated at $111,902.00 with anticipated recoveries of $75,600.00; the net cost to the City is, therefore, $36,302.00. The Commissioner of Parks and Recreation and I are of the opinion that the proposed programme of clean-up work is essential to beach water quality and, therefore, recommend that the City undertake this programme whether or not it is approved under the Environment 2000 Programme.

Recommendations:

That City Council approve the Beach Caretaking Programme as proposed by the Commissioner of Parks and Recreation and that Council give prior authorization and provide funds in the amount of $111,902.00 (gross) in order that work may proceed prior to the approvals required from the Federal Government under the Environment 2000 Programme.

That City Council request the Federal Government to give early consideration to approval of the City's application for beach clean-up work under the Environment 2000 Programme.

(c) Financial Requirements

Table 1 below sets out the funding required for the 1984 Plan for the Beaches:

TABLE 1

1984 PLAN FOR THE BEACHES
FINANCIAL REQUIREMENTS

ITEM	GROSS COST	NET COST	COMMENTS
1. Purchase of surfrake and Vacumm Litter pickers	$ 79,000	$ 35,550	Prior Authorization Gross Funds have been Approved
2. Shoreline and Shallows Improvements to Sunnyside Beaches	150,000	67,500	Prior Authorization Gross Funds Required
3. Preparation of Bird Control Programme	10,000	4,500	Prior Authorization Gross Funds Required
4. Study for Predictive Model and Related Sampling, Testing Work and Equipment	182,000	81,900	Prior Authorization Gross Funds Required
5. Diversion of Run-off from Grenadier Pond	30,000	13,500	Prior Authorization Gross Funds Required
6. Clean-up Programme by Department of Parks & Recreation	111,902	16,336	Prior Authorization Gross Funds Required If Grant is not Received from Federal Government Net Cost will Amount to $50,356
Totals - Current Funds	562,902	219,286	
Acceleration of Sewer Programme - Capital Funds	2,314,000	1,020,000	Financing Approved in 1984 Capital Works Programme Subject to Additional M.T.C. Subsidies in the Amount of $512,000 being Approved
TOTALS -	$2,876,902	$1,239,286	

Your Committee will note that Items 1, 2, 3, 4, 5, and 6 in Table 1 are provided from current funds and total $562,902.00; of this amount, $79,000.00 has already received prior authorization. In the early part of 1984 and prior to the details of this report being available, I included an amount of $500,000.00 in my Operating Budget for work to the beaches. I have previously indicated in this report that the City should proceed with a beaches programme no later than May, 1984, and should do so with or without subsidy from the senior levels of government. I am hopeful that these subsidies will be forthcoming and will diligently apply for and pursue same.

Recommendations:

That City Council approve of the 1984 Plan for the Beaches and give prior authorization to funds in the amount of $372,000.00 (gross) in order that work may be started no later than the beginning of May, 1984.

That City Council request the Province of Ontario to consider the work and studies proposed for the City's beaches for the normal contribution of 55% by the Province for waterfront development work.

CONCLUSIONS

The beaches, in the City of Toronto, are a substantial and pleasurable asset to our citizens. The work, both by the City of Toronto and the Metropolitan Corporation, since the early 1960's, has been extensive and has resulted in major and lasting improvements to the water quality of the Lake. The current water quality guidelines in Ontario, when compared to many other jurisdictions in North America and abroad, are stringent, but it is my opinion that they can be maintained and enforced.

Improvement of water quality, in an urban area, is not obtained by theoretical and costly crash programmes; it is obtained by steady application of informed, affordable and realistic actions. The plan which I am recommending for 1984 will result in further improvements to water quality and increase our knowledge for steady improvement in the years ahead. I am also sure that the most careful consideration will be given by the experts who set water quality guidelines as to the consequences, both financial and societal, of any unproven revisions proposed to the current stringent requirements.

SUMMARY OF RECOMMENDATIONS

1. That City Council request the Honourable A. S. Brandt, Minister of the Provincial Ministry of the Environment to confirm the present water quality bacteriological criteria and sampling procedures will continue to be applied during 1984.

2. That no action be taken with respect to the extension of existing sewer outfalls at the Eastern Beaches pending further water quality studies.

3. That City Council request the Province of Ontario and the Federal Government to give consideration to the funding of a demonstration chlorination facility to the Maclean Avenue combined sewer outlet at an estimated construction cost of $225,000.00 and that the annual operation cost ($35,000.00) be shared between the City, the Province of Ontario and the Federal Government.

4. That City Council endorse the construction of a diversion structure at the mouth of the Humber River and request that the work be completed at the earliest possible date.

5. That City Council, subject to the construction of the Humber River diversion structure, approve of the diversion of run-off from Grenadier Pond into the Humber River at an estimated cost of $30,000.00 and that no action be taken on the extension of the Ellis Avenue storm sewer until an evaluation of this diversion on beach water quality has been undertaken.

6. That City Council approve of shoreline improvements for the Sunnyside Beaches being undertaken in 1984 at an estimated cost of $150,000.00.

7. That City Council approve of a bird control programme being developed in co-operation with Metropolitan Toronto and the Metropolitan Toronto and Region Conservation Authority at an estimated cost of $10,000.00.

8. That a study of the need to remove existing bottom sediments behind the seawall at the Sunnyside Beaches and improved lake circulation not be started until the impact of the Humber River diversion structure and the diversion of run-off from Grenadier Pond has been evaluated.

9. That City Council approve of the engagement of Gore & Storrie Limited, 1670 Bayview Avenue, Toronto, Ontario, M4G 3C2, to provide assistance to my staff in the development of a predictive water quality model for the Eastern Beaches at an estimated cost of $85,000.00. Payment to be made in accordance with the current Schedule of Fees as recommended by

the Association of Professional Engineers of the Province of Ontario, Fee Basis "A" - Time Plus Expenses.

10. That City Council approve of the engagement of Dorsch Consult Limited, 417 Queens Quay West, Suite G130, Toronto, Ontario, M5V 1A2, at an estimated cost of $50,000.00, to provide assistance to my staff in connection with the determination of sewer system loadings. Payment to be made in accordance with the current Schedule of Fees, as recommended by the Association of Professional Engineers of the Province of Ontario, Fee Basis "A" - Time Plus Expenses.

11. That City Council approve of field survey work and associated testing being undertaken by my Department at an estimated cost of $45,000.00.

12. That no action be taken at this time to the extension of the Maclean Avenue and Kenilworth Avenue combined sewer outlets.

13. That the Medical Officer of Health be requested to report to City Council on the details of his 1984 sampling and testing programme for the City's beaches.

14. That City Council approve the Beach Caretaking Programme as proposed by the Commissioner of Parks and Recreation and that Council give prior authorization and provide funds in the amount of $111,902.00 (gross) in order that work may proceed prior to the approvals required from the Federal Government under the Environment 2000 Programme.

15. That City Council request the Federal Government to give early consideration to approval of the City's application for beach clean-up work under the Environment 2000 Programme.

16. That City Council approve of the 1984 Plan for the Beaches and give prior authorization to funds in the amount of $372,000.00 (gross) in order that work may be started no later than the beginning of May, 1984.

17. That City Council request the Province of Ontario to consider the work and studies proposed for the City's Beaches for the normal contribution of 55% by the Province for waterfront development work.

R.M. Dick

RMB/vk Commissioner.